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10/691,117

10/21/2003

David J. Vachon

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23405

7590

10/31/2007

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EXAMINER

BROOKS, KRISTIE LATRICE

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

10/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/691,117 | <b>Applicant(s)</b><br>VACHON ET AL. |  |
|                              | <b>Examiner</b><br>Kristie L. Brooks | <b>Art Unit</b><br>1616              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-17 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-17 and 25-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Status of Application***

1. Claims 15-17 and 25-34 are pending.
2. New grounds of rejections.
3. This action is a non-final.

***Withdrawn Rejections/Objections***

4. The objection of claims 15-17 and 25-34 for typographical errors are withdrawn in light of Applicants amendments filed August, 14, 2007.

5. The rejection of claims 16-17 under 35 U.S.C. 112 are withdrawn in light of Applicants amendments filed August, 14, 2007.

6. The rejection of claims 15-17, 31-32 under 35 U.S.C. 103(a) as being unpatentable over Laboratoire de Recherches Physiques (GB 1,098,006) in view of Blaser et al. (US 2,764,576) are withdrawn in light of Applicants amendments filed August, 14, 2007.

7. The rejection of claims 25-26 and 33-34 under 35 U.S.C. 103(a) as being unpatentable over Laboratoire de Recherches (GB 1,098,006) in view of Blaser et al. (US 2,764,576) are withdrawn in light of Applicants amendments filed August, 14, 2007.

8. The rejection of claims 27-28 under 35 U.S.C. 103(a) as being unpatentable over Laboratoire de Recherches Physiques (GB 1,098,006) in view of Blaser et al. (US 2,764,576) are withdrawn in light of Applicants amendments filed August, 14, 2007.

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9. The rejection of claims 27-30 under 35 U.S.C. 103(a) as being unpatentable over Laboratoire de Recherches Physiques (GB 1,098,006) in view of Blaser et al. (US 2,764,576) are withdrawn in light of Applicants amendments filed August, 14, 2007.

***New Grounds of Rejections***

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Saute (US 4,126,142).

Saute teaches a skin treating formulation comprising polystyrene sulfonate salts (see the entire article, especially the abstract and column 1 lines 50-57). The sulfonated polystyrene salts are produced by sulfonating styrene monomers and treating the product with neutralizing bases such as sodium hydroxide, ammonium hydroxide, potassium hydroxide or sodium carbonate (see the entire article, especially column 1 lines 65-67 through column 2 lines 1-3). Example 1, discloses the preparation of a skin formulation comprising a polystyrene sulfonate salt and applying it to one's skin by brushing or dabbing with cotton to form an even film layer (see the entire article, especially Example 1 in column 3). It is the Examiners position with regard to the preamble, a method for controlling biological organisms on a porous surface, since the

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method steps of the prior art and the instant invention are the same, i.e. coating a porous surface with the same polystyrene sulfonate salts, the claimed method would be inherent.

12. Claim 15, 25, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen et al. (US 2,676,896).

Cohen et al. teach the treatment of textile materials with a water-insoluble amine salt of sulfonated polystyrene (see the entire article, especially column 1 lines 1-8 and lines 27-41). The textile material include fiber, yarns, woven and knitted fabrics, apparel fabric, wool, etc (see the entire article, especially column 2 lines 35-55 and column 3 lines 1-2). The water-insoluble amine salts of sulfonated polystyrene are applied to the textile material by coating one or more sides of the textile material with the water-insoluble amine salts of sulfonated polystyrene (see the entire article, especially column 2 lines 25-34). The sulfonated polystyrene or water soluble salts thereof may be prepared using polymerization, sulfuric acid, and neutralization with bases such as quaternary ammonium hydroxides, ammonia, alkali metal hydroxides and carbonates (see the entire article, especially column 5 lines 60-75 through column 6 lines 1-13). Example I discloses cellulose acetate fabric padded through a solution of a sodium salt of sulfonated polystyrene. The dried fabric was then padded through a water solution of lauryl amine acetate where the sodium salt of sulfonated polystyrene reacted with the lauryl amine acetate to give a water-insoluble lauryl amine salt of the sulfonated polystyrene (see the entire article, especially Example I in column 6). It is the

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Examiners position with regard to the preamble, a method for controlling biological organisms on a porous surface, since the method steps of the prior art and the instant invention are the same, i.e. coating a porous surface with the same polystyrene sulfonate salts, the claimed method would be inherent.

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 2,676,896).

Applicant claims a method for controlling biological organisms on a porous

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surface comprising forming a coating comprising a salt of a sulfonated styrene copolymer on the porous surface.

**Determination of the scope and content of the prior art**

**(MPEP 2141.01)**

Cohen et al. teach the treatment of textile materials with a water-insoluble amine salt of sulfonated polystyrene (see the entire article, especially column 1 lines 1-8 and lines 27-41). The textile material include fiber, yarns, woven and knitted fabrics, apparel fabric, wool, etc (see the entire article, especially column 2 lines 35-55 and column 3 lines 1-2). The water-insoluble amine salts of sulfonated polystyrene are applied to the textile material by coating one or more sides of the textile material with the water-insoluble amine salts of sulfonated polystyrene (see the entire article, especially column 2 lines 25-34). The sulfonated polystyrene or water soluble salts thereof may be prepared using polymerization, sulfuric acid, and neutralization with bases such as quaternary ammonium hydroxides, ammonia, alkali metal hydroxides and carbonates (see the entire article, especially column 5 lines 60-75 through column 6 lines 1-13). Example I discloses cellulose acetate fabric padded through a solution of a sodium salt of sulfonated polystyrene. The dried fabric was then padded through a water solution of lauryl amine acetate where the sodium salt of sulfonated polystyrene reacted with the lauryl amine acetate to give a water-insoluble lauryl amine salt of the sulfonated polystyrene (see the entire article, especially Example I in column 6).



***Ascertainment of the difference between the prior art and the claims***

**(MPEP 2141.02)**

Cohen al. do not teach forming a coating by coating the porous surface with the sulfonated styrene copolymer in acid form and converting the acid form of the sulfonated styrene copolymer to the salt form of the formulation as claimed by Applicant.

**Finding of prima facie obviousness**

**Rational and Motivation (MPEP 2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to forming a coating by coating the porous surface with the sulfonated styrene copolymer in acid form and converting the acid form of the sulfonated styrene copolymer to the salt form.

One of ordinary skill in the art would have been motivated to do this because Cohen et al. suggest fabric padded through a solution of a sodium salt of sulfonated polystyrene and then padded through a water solution of lauryl amine acetate where the sodium salt of sulfonated polystyrene reacted with the lauryl amine acetate to give a water-insoluble lauryl amine salt of the sulfonated polystyrene. Thus, it would be obvious to one of ordinary skill in the art to coat the porous surface with the sulfonated styrene copolymer in acid form and converting the acid form of the sulfonated styrene

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copolymer to the salt form because it is an obvious variation of ways to coat the fabric with the polystyrene sulfonated salt and in absence of evidence to the contrary, one of ordinary skill would have employed any conventional method to coat a porous surface with the polystyrene sulfonated salt. Therefore, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

15. Claims 15 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berlowitz-Tarrant et al. (US 5,840,387).

Applicant claims a method for controlling biological organisms on a porous surface comprising forming a coating comprising a salt of a sulfonated styrene copolymer on the porous surface.

#### **Determination of the scope and content of the prior art**

##### **(MPEP 2141.01)**

Berlowitz-Tarrant et al. teach sulfonated multiblock copolymers are useful for providing nonthrombogenic coatings for medical devices (see the entire article, especially the abstract). The nonthrombogenic article for coating includes stents, catheters, artificial hearts, heart valves, pacemakers, vascular grafts, etc. (see the entire article, especially column 1 lines 60-67). The preferred anionic multiblock copolymer is a sulfonated styrene-ethylene/butylenes-styrene triblock copolymer (see the entire article,

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especially column 1 lines 54-57). The polymers of the present invention are useful as drug carriers for therapeutic agent such as antibiotics (see the entire article, especially column 5 lines 66-67 and column 6 lines 1-2 and 58-67).

***Ascertainment of the difference between the prior art and the claims***

**(MPEP 2141.02)**

Berlowitz-Tarrant et al. do not teach forming a salt of a sulfonated styrene copolymer as claimed by Applicant.

**Finding of prima facie obviousness**

**Rational and Motivation (MPEP 2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to forming a salt of a sulfonated styrene copolymer.

One of ordinary skill in the art would have been motivated to do this because the salts of compounds most often provide a means to altering the physiochemical and resultant biological properties of a water insoluble compound without altering the structure. Thus it would be obvious to one of ordinary skill in the art to use a salt of a sulfonated styrene-ethylene/butylenes-styrene triblock copolymer because it allows for an improvement in the properties of the copolymer without altering the structure. Therefore, the claimed invention would have been *prima facie* obvious to one of

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ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

16. Claims 15, 17, 31 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US 3,987, 797).

Applicant claims a method for controlling biological organisms on a porous surface comprising forming a coating comprising a salt of a sulfonated styrene copolymer on the porous surface.

**Determination of the scope and content of the prior art  
(MPEP 2141.01)**

Stephenson teaches a surgical suture coated with an ionically bonded block elastomeric copolymer of a polyquaternary polyurethane and a polyanionic polymer (see the entire article, especially the abstract. The quaternized elastomeric polymer can be reacted with anionic polymers such as polystyrene sulfonated or its alkali metal or ammonium salts (see the entire article, especially column 4 lines 29-34). The elastomeric copolymer can be used as a coating on bandages and wound dressings (see the entire article, especially column 6 lines 51-55). And the copolymer can also contain antimicrobials such as tetracycline (see the entire article, especially column 5 lines 45).

***Ascertainment of the difference between the prior art and the claims***

**(MPEP 2141.02)**

Stephenson does not teach an exemplification of forming a coating comprising the sulfonated polystyrene salt on a porous surface as claimed by Applicant.

**Finding of prima facie obviousness**

**Rational and Motivation (MPEP 2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to form a coating comprising the sulfonated polystyrene salt on a porous surface.

One of ordinary skill in the art would have been motivated to do this because the Stephenson suggests the elastomeric polymer comprising the polystyrene sulfonate salt allows for receptive treatment to antimicrobial compounds useful in coat wound dressing made for topical application. Thus it would be obvious to one of ordinary skill in the art to form a coating comprising the sulfonated polystyrene salt on a porous surface because the coating will give a more effective treatment with antimicrobial compounds. Therefore, the claimed invention would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention. Regarding the preamble, since the prior art

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suggest the same method steps, i.e. the same polymer on a porous substrate, it is the Examiner's Position that the preamble will implicitly occur.

16. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US 3,987, 797) in view of Poche (US 5,932,437).

Applicant claims a method for controlling biological organisms on a porous surface comprising forming a coating comprising a salt of a sulfonated styrene copolymer on the porous surface.

**Determination of the scope and content of the prior art  
(MPEP 2141.01)**

Stephenson teaches a surgical suture coated with an ionically bonded block elastomeric copolymer of a polyquaternary polyurethane and a polyanionic polymer (see the entire article, especially the abstract. The quaternized elastomeric polymer can be reacted with anionic polymers such as polystyrene sulfonated or its alkali metal or ammonium salts (see the entire article, especially column 4 lines 29-34). The elastomeric copolymer can be used as a coating on bandages and wound dressings (see the entire article, especially column 6 lines 51-55). And the copolymer can also contain antimicrobials such as tetracycline (see the entire article, especially column 5 lines 45).

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Poche teaches controlling lime disease by administering a composition comprising an antibiotic (see the entire article, especially the abstract). Suitable antibiotics include tetracycline and doxycycline (see the entire article, especially column 1 lines 53-60).

***Ascertainment of the difference between the prior art and the claims***

**(MPEP 2141.02)**

Stephenson does not teach the instant species doxycycline as claimed by Applicant.

**Finding of prima facie obviousness**

**Rational and Motivation (MPEP 2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use doxycycline.

One of ordinary skill in the art would have been motivated to do this because the Stephenson suggests the use of the genus tetracycline in the wound dressings. Thus it would be obvious to one of ordinary skill in the art to use doxycycline, because it is an obvious variation of the tetracycline compounds that can be used as antibiotics as suggested by Poche. Therefore, the claimed invention would have been *prima facie*

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obvious to one of ordinary skill in the art at the time the invention was made because the prior art is fairly suggestive of the claimed invention.

### ***Conclusion***

17. No claims are allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie L. Brooks whose telephone number is (571) 272-9072. The examiner can normally be reached on M-F 8:30am-6:00pm Est..

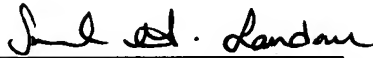
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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A handwritten signature in cursive script, appearing to read "Sharmila Landau", is written over a horizontal line.

Sharmila Landau

Primary Patent Examiner

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